

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number  
**WO 2004/085610 A2**

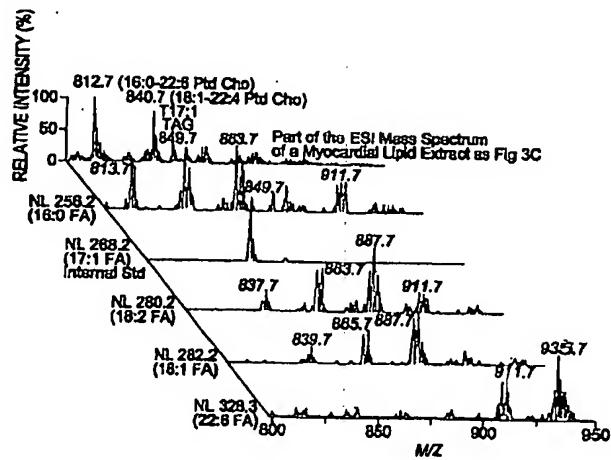
- (51) International Patent Classification<sup>7</sup>: C12N
- (21) International Application Number: PCT/US2004/007176
- (22) International Filing Date: 10 March 2004 (10.03.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/458,733 28 March 2003 (28.03.2003) US  
10/606,601 26 June 2003 (26.06.2003) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

- without international search report and to be republished upon receipt of that report

[Continued on next page]

(54) Title: MULTIDIMENSIONAL MASS SPECTROMETRY OF SERUM AND CELLULAR LIPIDS DIRECTLY FROM BIOLOGIC EXTRACTS



**WO 2004/085610 A2**

(57) Abstract: A method for determination of at least one of the lipid species in a biological sample comprising subjecting the sample to lipid extraction to obtain a lipid extract and subjecting the resulting lipid extract to multidimensional electrospray ionization mass spectrometry using either precursor ion or neutral loss scanning (or both) of all naturally occurring aliphatic chains, lipid fragments and precursor ions leading to observed fragments to generate a multidimensional matrix whose contour densities provides structural and quantitative information directly without chromatography. A method for determination of lipid content and/or lipid molecular species composition and quantity directly from lipid extracts of a biological sample comprising subjecting said lipid extract to electrospray ionization multidimensional mass spectrometry by comparisons to standards and algorithms described herein.